

Trends from the London trusts about whether their medical / surgical and other specialty admissions have increased as the outbreak has developed

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Summary

There is a need to more accurately model the non-COVID capacity that needs to be retained in NHS hospitals in the BNSSG area. Planning bed and staff capacity to prepare for the anticipated surge of COVID-19 patients within the next few days is imperative. To answer the question, we undertook a review of published studies, reports and data. We also reached out to all ARCs nationally, including those in London, for information that can help address the question.

We could not find any relevant published literature to answer the question. There are no published studies and reports, or data directly addressing this question. Data from Public Health England showed that total number of hospital admissions have decreased since middle of March, as well admissions for gastrointestinal, cardiac and respiratory diseases (with the exception of pneumonia).

Current overall bed occupancy in Scotland is probably between 60-70%. Scottish NHS Trusts have seen a decline in emergency attendances and admissions that are non-COVID related although the trend is beginning to rise again.

Estimates from NIHR ARC Northwest London for London trusts suggest that if only maternity, elective cancer and emergency patients are occupying a bed, nearly 41% of occupied acute inpatient beds could be freed up. For adult critical care beds, if only maternity, elective cancer and emergency patients were admitted, 36% of critical care beds could be freed up.

Background

The following request was received from Elly Bernard, BNSSG CCG:

The Capacity & Impact Response Cell is responsible for BNSSG's operational response to COVID-19. All hospital trusts, primary care, mental health, logistics, and workforce feed in.

Current focus is planning bed and staff capacity in preparation of the anticipated surge of COVID-19 patients within the next few days.

An urgent question has emerged from the cell asking whether someone could please look into trends from the London trusts about whether their takes (the medical / surgical and other specialty admissions) have picked up as the outbreak has developed.

There is a need to model more accurately what non-COVID capacity we need to retain. At the moment all of our takes have reduced and we are planning for this to continue, but it would be really helpful to understand if this pattern of reduced takes has continued in London trusts.

This is an extremely dynamic cell where decisions and plans are made on the calls so the ask is for a high-level steer based on the experience of London colleagues, if possible.

Methods

We used the general search engine (Google) and Pubmed to search for relevant literature or data using the following search terms: 'non-covid hospital admissions', 'covid-19 effect hospital admissions', 'covid-19 hospital admissions' and 'covid-19 admissions'. We read the most relevant webpages and articles from the UK sources. We also looked at the NHS England hospital admission data and statistics, and Public Health England information.

We have reached out to all ARCs nationally, including those in London, for information that can help address the question. We received information from ARC Northwest London. They used a bespoke inhouse A&E tracker to predict hospital admissions for Scotland and HES data to predict total acute inpatient beds and adult critical care beds.

Results

We could not find any relevant published literature that directly addresses the question. We found no publicly available data or statistic more recent than February 2020 specific to London Trusts.

Public Health England reports showed that attendances at NHS emergency departments have fallen sharply since middle of March as the coronavirus outbreak started in the UK [1].

Public Health England monitors daily visits to a network of A&Es across England [2]. The latest figures, to Sunday 29 March, showed total attendances dropped by half since 8 March. [1,2,3]

Public Health England data also showed that in the period covering 1 to 29 March 2020 [3]:

- There was a decrease in the total number of ED attendances since middle of March (Figure 1).

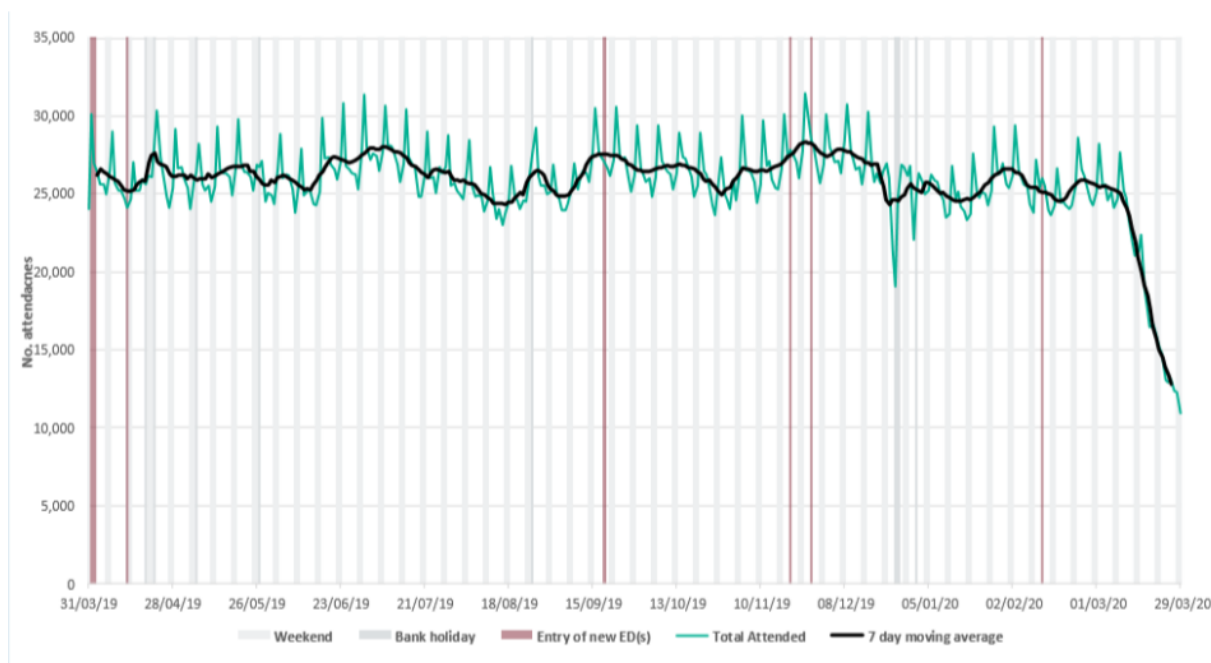


Figure 1. Total number of ED attendances [3]

- There was a decrease in the total number of ED attendances for respiratory diseases. However, the number of pneumonia attendances increased by around 25% (Figure 2)

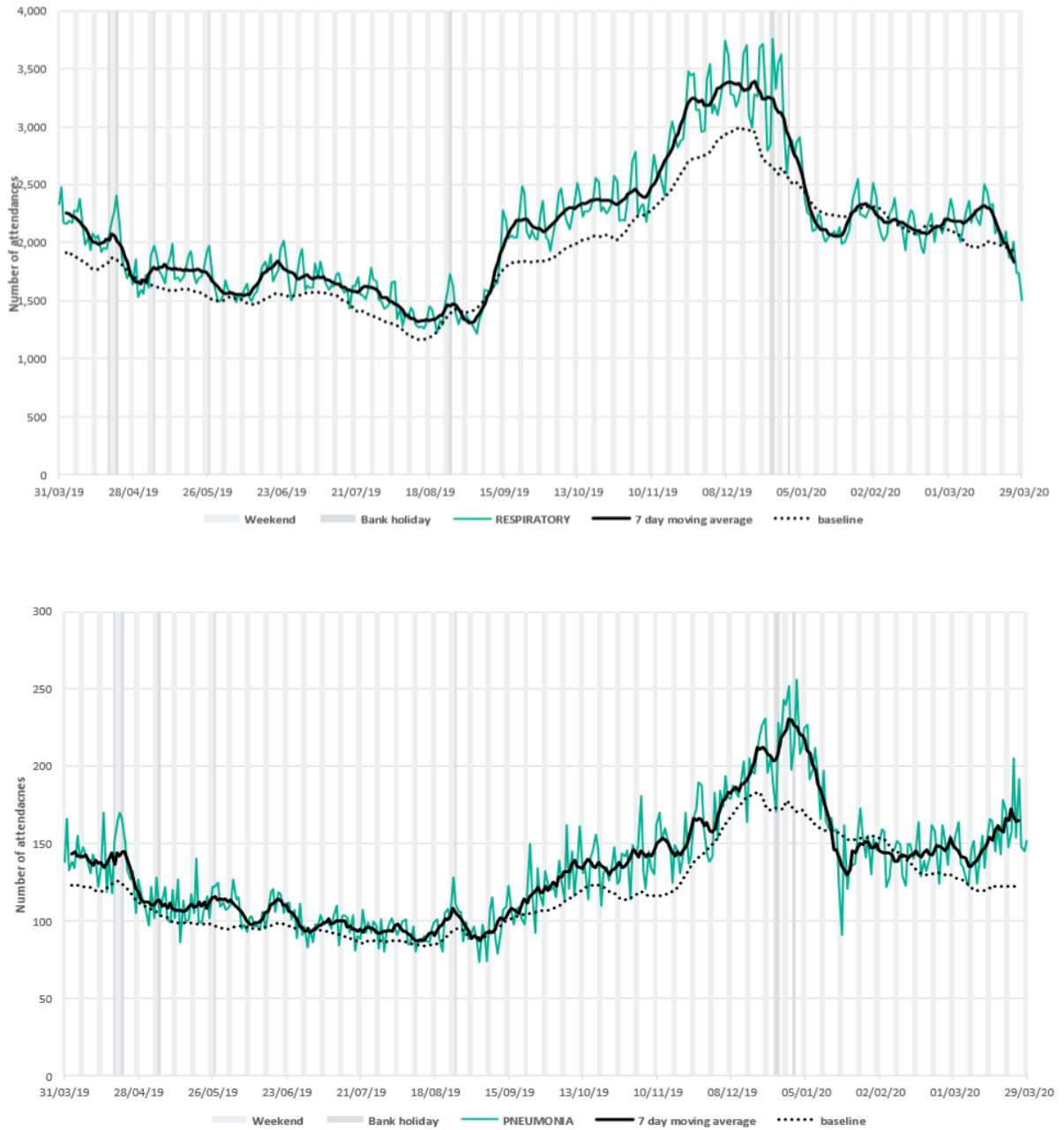


Figure 2. Number of ED attendances for respiratory diseases and pneumonia [3]

- Admissions for gastrointestinal and cardiac diseased have also decreased since middle of March (Figure 3).

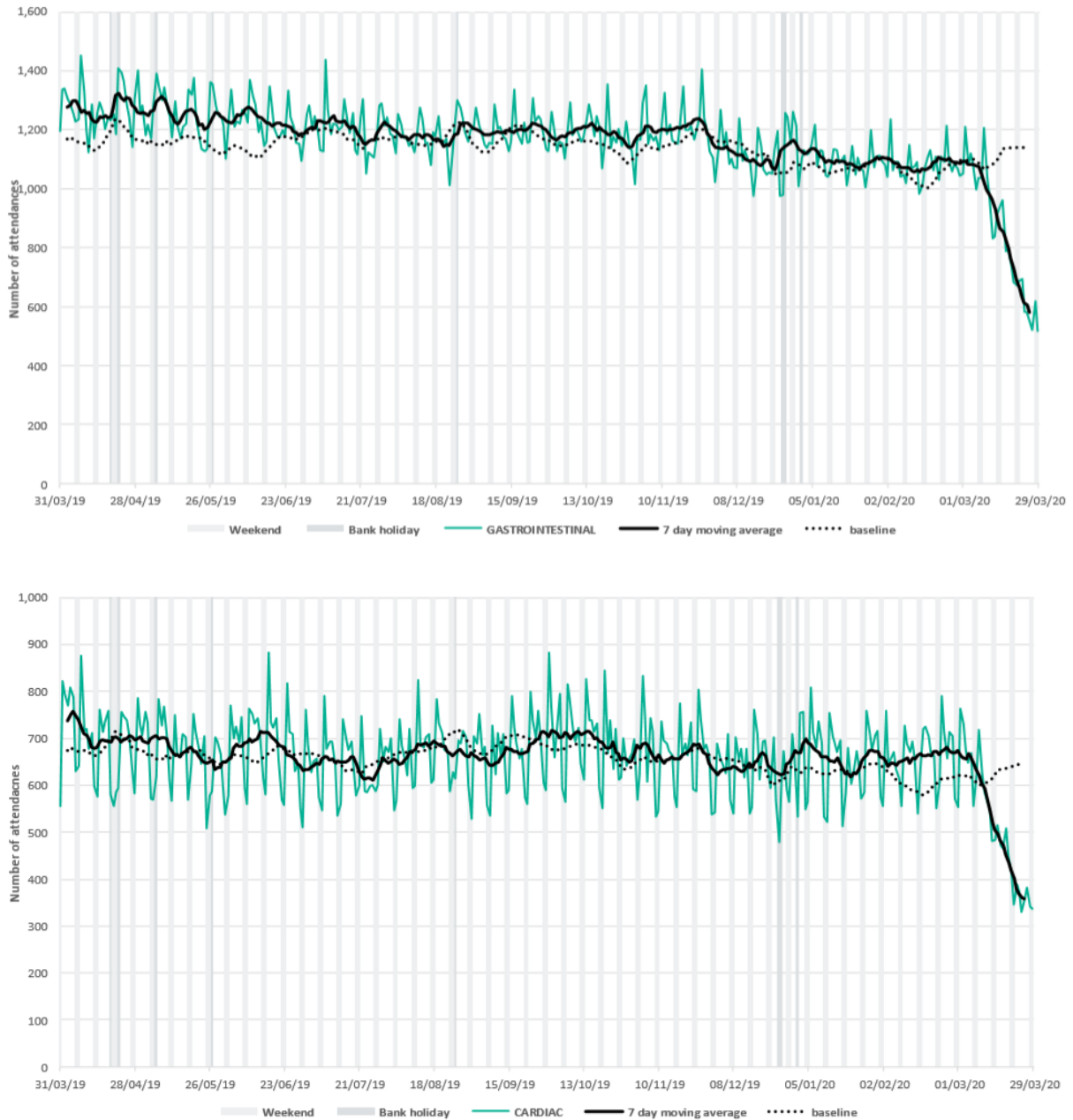


Figure 3. Number of ED attendances for gastrointestinal and cardiac diseases [3]

Data to 22 March 2020: During week 12, GP consultations for all indicators have decreased. However, trends should be interpreted with caution due to changes in advice regarding accessing GP surgeries due to COVID-19, and the development of new codes for COVID-19 diagnoses. [4]

Latest publicly available data from NHS England for A&E Attendances and Emergency Admissions only cover until February 2020 [5]:

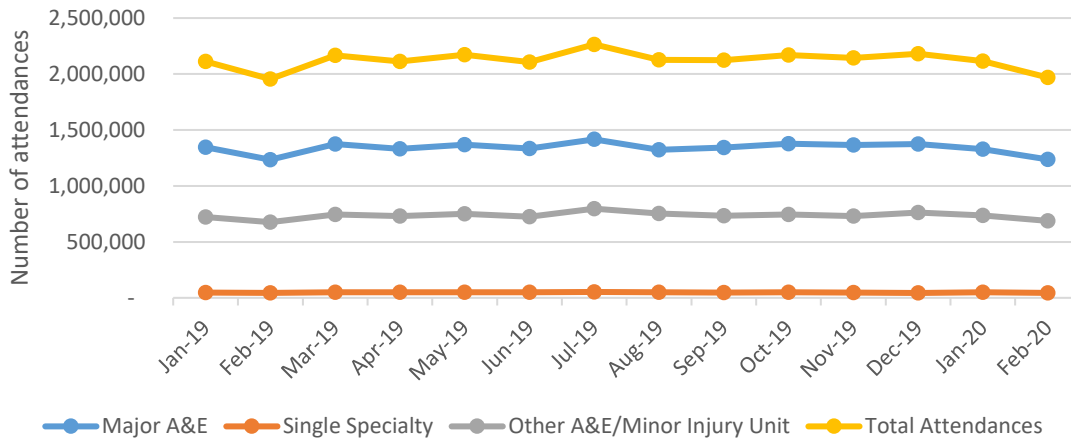


Figure 4. Number of A&E attendances

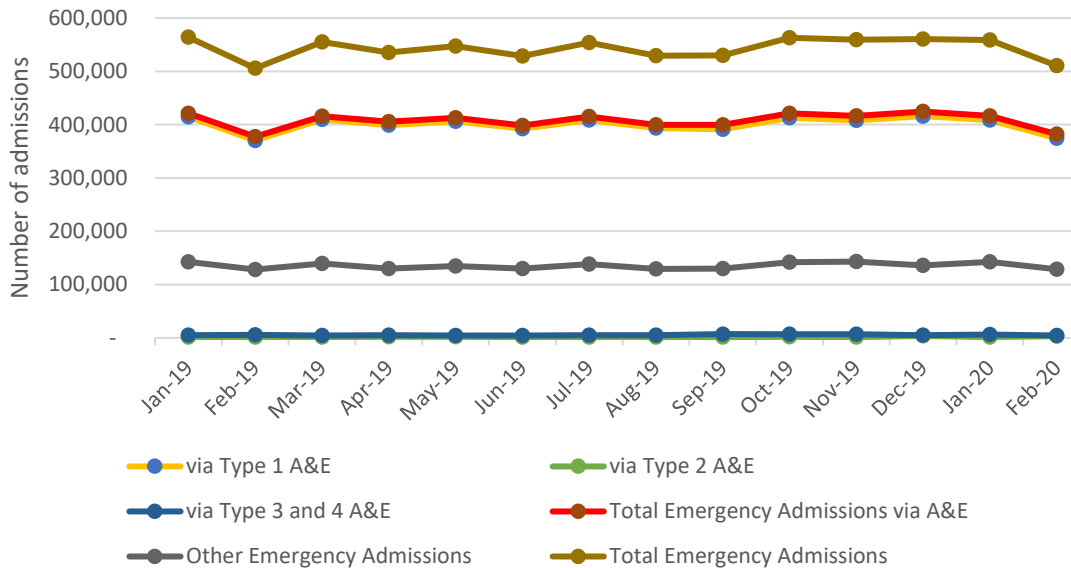


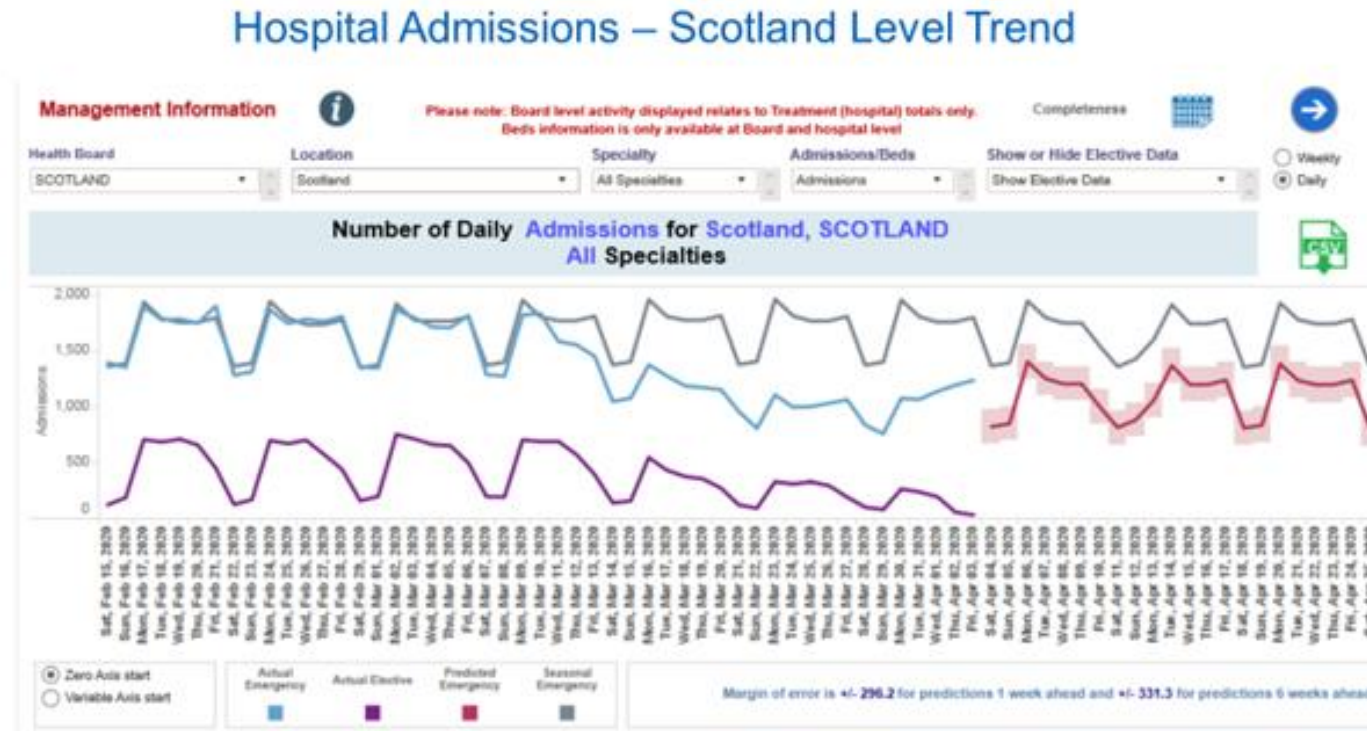
Figure 5. Number of Emergency Admissions

References

- <https://www.hsj.co.uk/acute-care/some-hospitals-left-quiet-as-covid-19-sparks-huge-fall-in-attendances/7027244.article>
- <https://www.gov.uk/government/publications/emergency-department-weekly-bulletins-for-2020>
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- <https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/ae-attendances-and-emergency-admissions-2019-20/>

Trends in hospital admissions in Scotland

Prof. Derek Bell, Department of Acute Medicine, Imperial College London



Whole system data shows that elective (purple line) and emergency admissions (blue line) have reduced over recent days

- Current overall bed occupancy in Scotland is probably between 60-70%
- Bed occupancy related to all electives cancelled except emergency surgery and cancer
- Decline in Emergency attendances and admissions are non-COVID related although beginning to rise again
- Delayed discharges reduced by 30%

Descriptive analysis of acute hospital populations by admission type, age and frailty

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Summary

In order to estimate the potential for freeing up NHS beds by admission type and patient category, we analysed adult inpatient and critical care records for the period April 2018 to March 2019 from Hospital Episode Statistics, the national hospital administrative database for England. We focused on acute specialist and acute non-specialist trusts and excluded day cases and regular day/night attenders. We estimated the daily numbers of patients overnight in acute specialist and non-specialist trusts using admission and discharge dates, with a 12-month run-in period (from 2017/18, the previous financial year's data) and an 8-month run-off period (April-December 2019).

Here we present an average daily patient population based on January 2019, the busiest month in the year for critical care (Tables 1-4). We provide estimates for total acute inpatient beds and adult critical care beds. We stratify our estimates based on admission type, age and frailty. For our frailty measure we have adapted work by Soong J et al 2015¹ with his input by excluding ICD-10 codes related to anxiety, depression and incontinence. The 65-year age cut-off and frailty index were chosen in light of recently published NICE algorithm on critical care.²

Our estimates suggest that if only maternity, elective cancer and emergency patients aged under 65 are occupying a bed, 71% of occupied acute inpatient beds could be freed up. If we also include non-frail patients 65 and over, nearly 41% of beds could be freed up. Similarly, for adult critical care beds, if only maternity, elective cancer and emergency patients were admitted, that would free up 56% of adult critical care beds. If non-frail patients aged 65 and over were included, 30% of critical care beds could be released.

Similarly, for London acute providers (list of trusts included in Appendix), our estimates suggest that if only maternity, elective cancer and emergency patients aged under 65 are occupying a bed, 65% of occupied acute inpatient beds could be released (Tables 5-6). If we also include non-frail patients 65 and over, nearly 41% of beds could be freed up. Similarly, for adult critical care beds, if only maternity, elective cancer and emergency patients were admitted, that would free up 60% of adult critical care beds (Tables 7-8). If non-frail patients aged 65 and over were included, 36% of critical care beds could be freed up.

We caution that this analysis is based on estimated inpatient populations from January last year and may not reflect total beds available. There is no direct correlation between a clinical frailty score of 5, indicated in the NICE algorithm, and the frailty index described by Soong et al. There are some published

difficulties³ in excluding duplicates of critical care episodes and linking to a patient admission, as well as submission completeness, which mean that our total numbers may not accurately reflect available beds, but we are confident that the proportions are a good reflection of patient mix. This analysis takes no account of increased bed capacity as a result of the response to COVID19.

Table 1 Average daily adult acute bed population in January 2019 stratified by admission type, age and frailty¹

Type of admission	Age 18-64		65+		Grand Total
	Frail=no	Frail=yes	Frail=no	Frail=yes	
Emergency	17617	3902	26752	29395	77666
Elective cancer	1409	84	1404	218	3115
Elective non-cancer	3603	476	3637	1200	8916
Maternity	4637	20	-	-	4657
Total	27266	4482	31793	30813	94354

Table 2 Percentage daily adult acute bed population in January 2019 stratified by admission type, age and frailty¹

Type of admission	Age 18-64		65+		Grand Total
	Frail=no	Frail=yes	Frail=no	Frail=yes	
Emergency	18.7%	4.1%	28.3%	31.2%	82.3%
Elective cancer	1.5%	0.1%	1.5%	0.2%	3.3%
Elective non-cancer	3.8%	0.5%	3.9%	1.3%	9.5%
Maternity	4.9%	0%	-	-	4.9%
Total	28.9%	4.7%	33.7%	32.7%	100%

Table 3 Average daily adult critical care bed population in January 2019 stratified by admission type, age and frailty¹

Type of admission	Age 18-64		65+		Grand Total
	Frail=no	Frail=yes	Frail=no	Frail=yes	
Emergency	843	305	670	300	2118
Elective cancer	88	8	104	24	224
Elective non-cancer	215	40	222	61	538
Maternity	18	0	-	-	18
Total	1164	353	996	385	2898

Table 4 Percentage daily critical care bed population in January 2019 stratified by admission type, age and frailty¹

Type of admission	Age 18-64		65+		Grand Total
	Frail=no	Frail=yes	Frail=no	Frail=yes	
Emergency	29.1%	10.5%	23.1%	10.3%	73.1%
Elective cancer	3.0%	0.3%	3.6%	0.8%	7.7%
Elective non-cancer	7.4%	1.4%	7.7%	2.1%	18.6%
Maternity	0.6%	0%	-	-	0.6%
Total	40.1%	12.2%	34.4%	13.3%	100%

Table 5 Average daily adult acute bed population in London in January 2019 stratified by admission type, age and frailty¹

Type of admission	Age 18-64		65+		Grand Total
	Frail=no	Frail=yes	Frail=no	Frail=yes	
Emergency	2837	663	3160	3812	10472
Elective cancer	308	23	218	44	593
Elective non-cancer	8343	121	608	260	1832
Maternity	1106	5	-	-	1111
Total	5094	812	3986	4116	14008

Table 6 Percentage daily adult acute bed population in London in January 2019 stratified by admission type, age and frailty¹

Type of admission	Age 18-64		65+		Grand Total
	Frail=no	Frail=yes	Frail=no	Frail=yes	
Emergency	20.2%	4.7%	22.6%	27.2%	74.7%
Elective cancer	2.2%	0.2%	1.6%	0.3%	4.3%
Elective non-cancer	6.0%	0.9%	4.3%	1.9%	13.1%
Maternity	7.9%	0%	-	-	7.9%
Total	36.3%	5.8%	28.5%	29.4%	100%

Table 7 Average daily adult critical care bed population in London in January 2019 stratified by admission type, age and frailty¹

Type of admission	Age 18-64		65+		Grand Total
	Frail=no	Frail=yes	Frail=no	Frail=yes	
Emergency	151	65	125	62	403
Elective cancer	19	2	19	7	47
Elective non-cancer	66	16	48	17	147
Maternity	8	0	-	-	8
Total	244	83	192	86	605

Table 8 Percentage daily critical care bed population in London in January 2019 stratified by admission type, age and frailty¹

Type of admission	Age 18-64		65+		Grand Total
	Frail=no	Frail=yes	Frail=no	Frail=yes	
Emergency	25.0%	10.7%	20.7%	10.3%	66.7%
Elective cancer	3.1%	0.3%	3.1%	1.2%	7.7%
Elective non-cancer	10.9%	2.7%	7.9%	2.8%	24.3%
Maternity	1.3%	0%	-	-	1.3%
Total	40.3%	13.7%	31.7%	14.3%	100%

Appendix. List of trusts (specialist and non-specialist) included in descriptive analysis of acute hospital population in London^{iv}

- Homerton University Hospital NHS Foundation Trust
- Great Ormond Street Hospital for Children NHS Foundation Trust
- Moorfields Eye Hospital NHS Foundation Trust
- Royal Free London NHS Foundation Trust
- Royal National Orthopaedic Hospital NHS Trust
- The Whittington Hospital NHS Trust
- University College London Hospitals NHS Foundation Trust
- North Middlesex
- Chelsea and Westminster Hospital NHS Foundation Trust
- Imperial College Healthcare NHS Trust
- London North West Healthcare NHS Trust
- The Hillingdon Hospitals NHS Foundation Trust
- Barking, Havering, Redbridge University Hospitals NHS Trust
- Dartford and Gravesham NHS Trust
- Guy's and St Thomas' NHS Foundation Trust
- King's College Hospital NHS Foundation Trust
- Lewisham and Greenwich NHS Trust
- Croydon Health Services NHS Trust
- Epsom and St Helier University Hospitals Trust
- Kingston Hospital NHS Foundation Trust
- St George's University Hospitals NHS Foundation Trust
- The Royal Marsden NHS Foundation Trust
- Barts Health NHS Trust

¹ Soong J, Poots AJ, Scott S, et al. Quantifying the prevalence of frailty in English hospitals. *BMJ Open* 2015;5:e008456. doi:10.1136/bmjopen-2015008456

² <https://www.nice.org.uk/guidance/ng159/resources/critical-care-admission-algorithm-pdf-8708948893>

³ <https://files.digital.nhs.uk/D1/EBA270/hosp-epis-stat-admi-acc-techguide-2018-19.pdf>

Disclaimer

This report has not been peer-reviewed; it should not replace individual clinical judgement and the sources cited should be checked. The views expressed in this report represent the views of the authors and not necessarily those of the University of Bristol, the NHS, the NIHR, or the Department of Health and Social Care. The views are not a substitute for professional medical advice.

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